

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No. : 10/058,036 Confirmation No. : 2683
First Named Inventor : Toshihiro TAKAGI
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Examiner : J. Shepard

Docket No. : 010482.50896US
Customer No. : 23911

Title : Channel Selection Device for Digital/analog Broadcasting Receiver

APPEAL BRIEF

Mail Stop Appeal Brief- Patents

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

On December 26, 2007, Appellants appealed to the Board of Patent Appeals from the final rejection of claims 1, 4, 5 and 8-10. The following is Appellants' Appeal Brief submitted pursuant to 37 C.F.R. § 1.192.

I. REAL PARTY IN INTEREST

An assignment of the present application to Funai Electric Co., Ltd. was recorded on January 29, 2002 at Reel/Frame 012536/0917, which represents the real party in interest.

II. RELATED APPEALS AND INTERFERENCES

Appellant is not aware of any appeals, interferences or other proceedings which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1, 4, 5 and 8-10 are pending and are subject to this appeal. Claims 2, 3, 6 and 7 are canceled and are not subject to this appeal.

IV. STATUS OF AMENDMENTS

Appellants' have not submitted any amendments subsequent to the mailing of the final Office Action mailed on August 30, 2007.

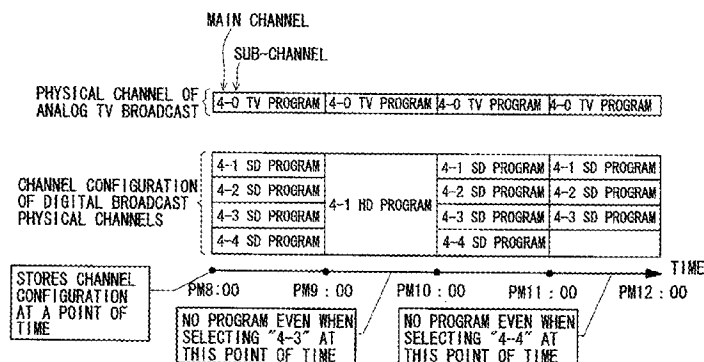
V. SUMMARY OF CLAIMED SUBJECT MATTER

Exemplary embodiments of the present invention are directed to systems and methods of channel selection. Conventionally, channel selection has been achieved by using channel up/down keys or numerical-value input keys. With regard to selection numerical-value input using keys, conventional techniques can also involve actuation of an "Enter" key to signify selection of a channel corresponding to the entered numerical-value input keys.

The advent of digital broadcasting has allowed transmission of a main channel and one or more sub-channels. As illustrated in Figure 6 of the present

application, reproduced below, the main channel number and sub-channel number can be separated by a hyphen.

FIG. 6 PRIOR ART



One conventional technique for selecting a digital broadcast channel involves entering a main channel number followed by the “Enter” key and then entering the sub-channel number, again followed by the “Enter” key.

Appellants’ have recognized that conventional channel selection techniques are particularly complicated when a user merely desires to select a sub-channel of a main channel that is currently being displayed. Accordingly, Appellants’ invention provides a much simpler technique for such channel selection, one that does not require entry of the main channel in order to select the sub-channel.

As illustrated in Figures 3(a) and 3(b) of the present application, reproduced below, when channel 4-3 is currently being displayed and a sub-channel of main channel “4” is to be selected, a user merely enters the “-” key to fix the main channel as channel “4”, and then enter the desired sub-channel number. In other words, the entry of the “-” key is not preceded by a numerical-value input key, and the entry of the “-” key fixes the main channel.

FIG. 3(a)

CHANNEL SELECTING EXAMPLE

DURING RECEIVING OF PROGRAM (HERE, SELECTING CHANNEL “4-3”)

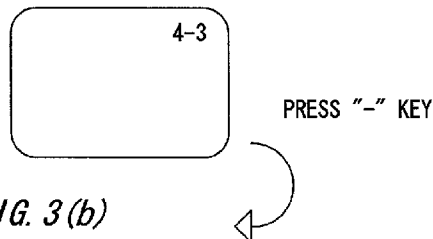
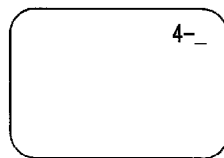


FIG. 3(b)

DECIDE ON “4” PREVIOUSLY SELECTED, FOR MAIN CHANNEL, AND
SHIFT TO SUB-CHANNEL SELECTION



This inventive channel selection technique allows a user to quickly and intuitively select a sub-channel of a same main channel as that currently being displayed, with a minimum number of key inputs.

INDEPENDENT CLAIM 1

Turning now to the claims, independent claim 1 recites a channel selection device in the digital/analog broadcasting receiver 1. The device includes a receiver 1 for receiving coded digital/analog broadcasting signals transmitted from a broadcasting station and a digital/analog decoder 3, 4 for decoding the digital/analog broadcasting signals received by the receiver 1 and outputting them to an image-displaying display device 12 connected to the broadcasting receiver 1¹. The device also includes a memory 7 for storing a channel information included in the broadcasting signals decoded by the digital decoder 3 and a control unit 8 for controlling the device². The device further includes an input device 11 used for a user to input an operation instruction including the channel selection to the control unit 8³. The digital broadcasting signals have one or a plurality of sub-channels to transmit contents in one main channel.

The input device 11 has a predetermined operation key to which an operation instruction is assigned to fix the channel, in addition to numerical-value input keys 33 for inputting the channel number⁴. The control unit 8 fixes the main/sub-channel selected by the following first or second selecting procedure in response to the operation instruction from the input device 11 during the reception of the broadcast by the broadcasting receiver 1.

In the first selecting procedure, when receiving an instruction by the predetermined operation key that is not preceded by the numerical-value input

¹ Figure 1 and page 10, lines 20-24 and

² Figure 1 and page 12, 10-19.

keys 33 (“Yes” path out of decision step #1), fixes the main channel being currently received (step #8), and waits for the sub-channel number input (step #10), and then fixes the sub-channel of the number of the numerical value inputted by the numerical-value input keys (steps #11-15)⁵.

In the second selecting procedure, when receiving the input of a numerical value by the numerical-value input keys 33 (“Yes” path out of decision step #2), and then receiving the input by the predetermined operation key (“Yes” path out of decision step #4), fixes the main channel of the number of the inputted numerical-value (step #7), and waits for the sub-channel number input (step #10), and then fixes the sub-channel of the number of the numerical value inputted by the numerical-value input keys (steps #11-15)⁶.

INDEPENDENT CLAIM 8

Independent claim 8 is directed to a method of selecting a channel. The method involves receiving an input from an input device 11 (steps #1 or #2) and determining whether the input is a predetermined operation key (step #1) and is not preceded by an input that is a numerical-value input key 33⁷.

A first selecting procedure is performed when the input is the predetermined operation key and is not preceded by the input that is the

³ Figure 1 and page 12, lines 14-16.

⁴ Figure 2 and page 14, lines 10-13 and 18-21.

⁵ Figures 3(a), 3(b) and 7, and page 15, lines 3-15, page 17, lines 1-7 and page 18, lines 5-16.

⁶ Figures 4(a), 4(b), 7, and page 16, lines 10-24, page 17, lines 8-24 and page 18, lines 5-16.

⁷ Figures 3(a), 3(b) and 7, and page 15, lines 3-15, page 17, lines 1-12.

numerical-value input key (“Yes” path out of decision step #1)⁸. The first selecting procedure includes fixing a main channel to a main channel that is currently being received (step #8) and waiting for an input of a numerical-value input key (step #10)⁹. The first selecting procedure also involves receiving an input of a numerical-value input key 33 and fixing a sub-channel as the input of the numerical-value input key (steps #11-15)¹⁰.

A second selecting procedure is performed when the input is the numerical-value input key followed by the predetermined operation key (“Yes” path out of decision step #2)¹¹. The second selecting procedure involves fixing a main channel to a main channel corresponding the numerical-value input key that preceded the predetermined operation key (step #7) and waiting for an input of a numerical-value input key (step #10)¹². The second selecting procedure also involves receiving an input of a numerical-value input key and fixing a sub-channel as the input of the numerical-value input key (steps #11-15)¹³.

⁸ Figure 7 and page 17, lines 1-7.

⁹ *Id.*

¹⁰ Figure 7 and page 18, lines 5-16.

¹¹ Figure 7 and page 17, lines 8-11.

¹² Figure 7 and page 17, lines 22-24.

¹³ Figure 7 and page 18, lines 5-16.

VI. GROUND OF REJECTION TO BE REVIEW ON APPEAL

The one ground of rejection for review on Appeal is whether claims 1, 4, 5 and 8-10 are obvious under 35 U.S.C. § 103(a) in view of the combination of U.S. Patent No. 6,661,472 to Shintani and U.S. Patent No. 6,766,526 to Ellis.

VII. ARGUMENT

The combination of Shintani and Ellis does not render claim 1 obvious because the combination does not disclose or suggest the claimed first selecting procedure, which is performed “when receiving an instruction by the predetermined operation key that is not preceded by the numerical-value input keys”. This selecting procedure involves “fix[ing] the main channel currently being received, and wait[ing] for the sub-channel number input.” The sub-channel is then fixed as “the number of the numerical value inputted by the numerical-value input keys.”

**ALL TECHNIQUES DISCLOSED BY SHINTANI REQUIRE
INVOLVE THE DELIMITER KEY BEING PRECEDED BY A
NUMERICAL-VALUE INPUT KEY**

As illustrated in Figure 2A of Shintani, reproduced below, a channel is selected by entering a major channel number, a delimiter and a minor channel number. In this technique the delimiter *is preceded* by a numerical-value, namely the major channel number, whereas the first selecting procedure of Appellants' claim 1 is performed "when receiving an instruction by the predetermined operation key *that is not preceded by the numerical-value input keys*".¹⁴

200

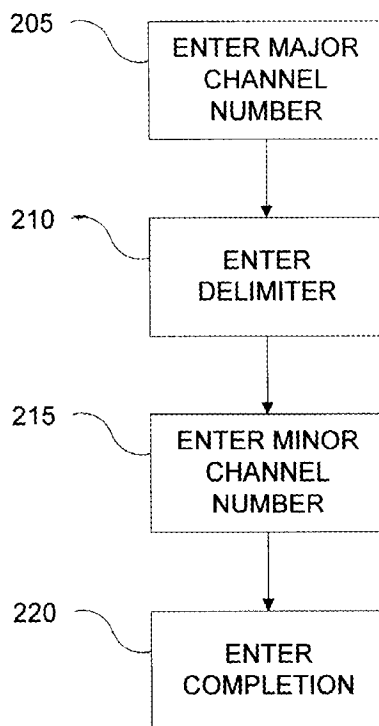


FIGURE 2A of Shintani

¹⁴ Emphasis added.

**ALL TECHNIQUES DISCLOSED BY ELLIS REQUIRE AN INITIAL
INPUT OF A NUMERICAL-VALUE INPUT KEY**

The Office Action relies upon Ellis as disclosing the claimed first selecting procedure. Ellis, however, only discloses techniques that involve first inputting one or more digits, i.e., a numerical-value input key. Specifically, Ellis discloses that the invention relates to “interactive television channel number entry wherein *after each digit is entered*, information associated with the entered channel or information to assist the user in the channel entry is displayed.”¹⁵ Accordingly, each of the techniques of Ellis involves preceding entries by numerical value input keys. In contrast, the first selecting procedure of Appellants’ claim 1 is performed “when receiving an instruction by the predetermined operation key *that is not preceded by the numerical-value input keys*”.¹⁶

As clearly illustrated in Figures 3-5, 8-11, 14 and 15 of Ellis, reproduced below, each technique of Ellis first requires a numerical value input.

¹⁵ Col. 1, lines 9-12, *emphasis added*.

¹⁶ Emphasis added.

**THE TECHNIQUE OF FIGURE 3 OF ELLIS IS INITIATED BY
INPUT OF A NUMERICAL-VALUE INPUT KEY**

The technique of Figure 3 involves providing the user with an opportunity to enter one or more digits (step 62), the user entering the digits, and then displaying information based on the entered digits (step 64).

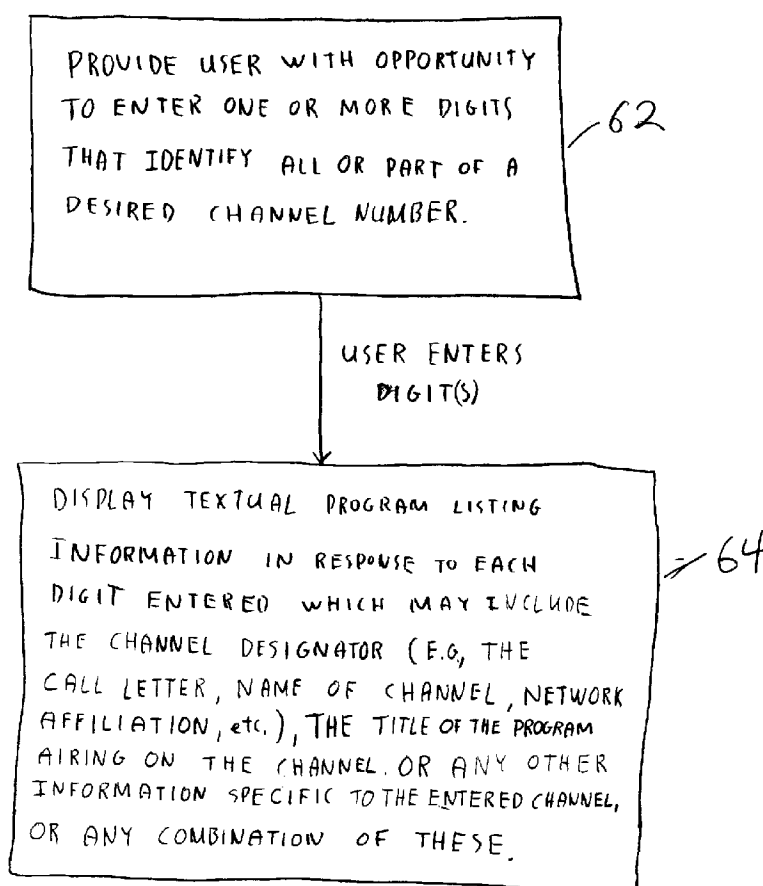
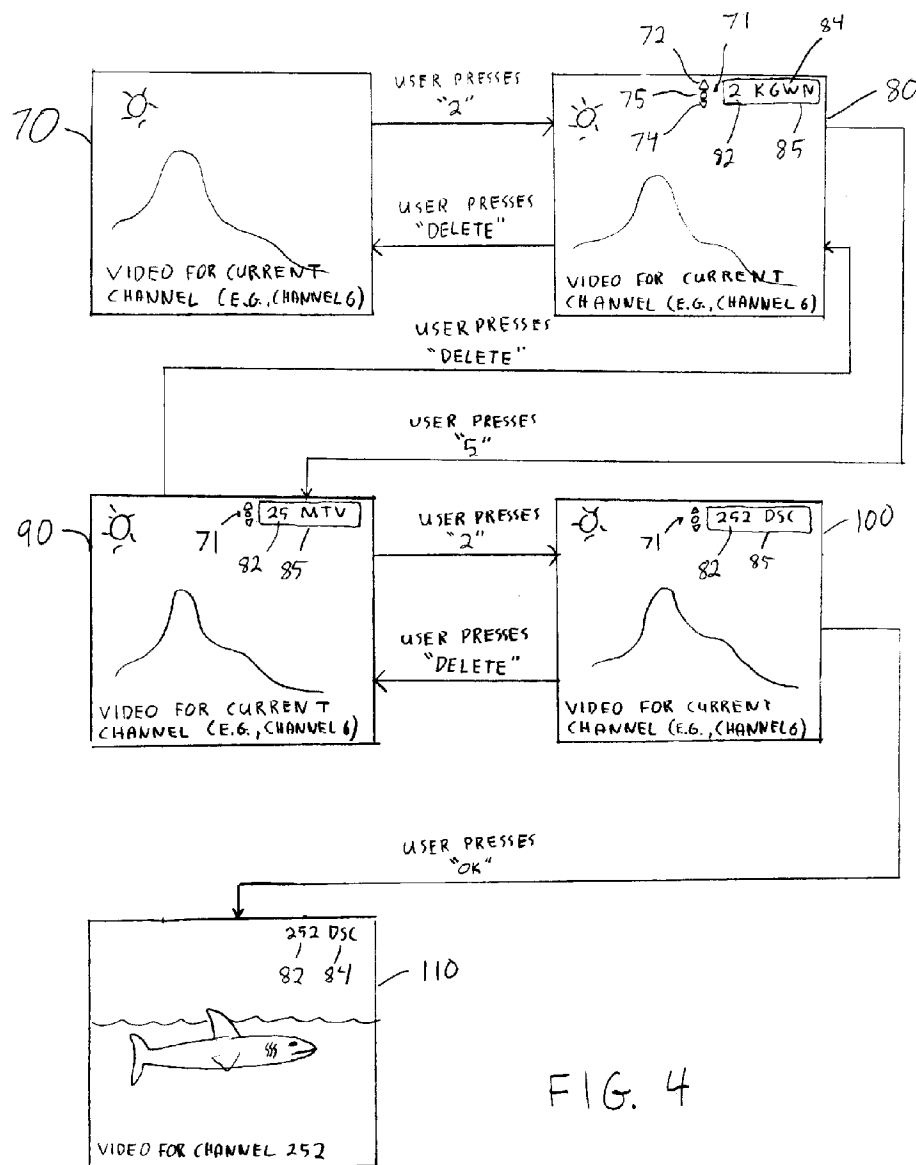


FIG. 3

**THE TECHNIQUE OF FIGURE 4 OF ELLIS IS INITIATED BY INPUT OF
A NUMERICAL-VALUE INPUT KEY**

The technique of Figure 4 requires the user to enter digits, which in this example is "2", before advancing from screen 70 to screen 80.



**THE TECHNIQUE OF FIGURE 5 OF ELLIS IS INITIATED BY
INPUT OF A NUMERICAL-VALUE INPUT KEY**

The technique of Figure 5 involves providing the user with an opportunity to enter one or more digits (step 120), the user entering the digits, and then displaying information based on the entered digits (step 122).

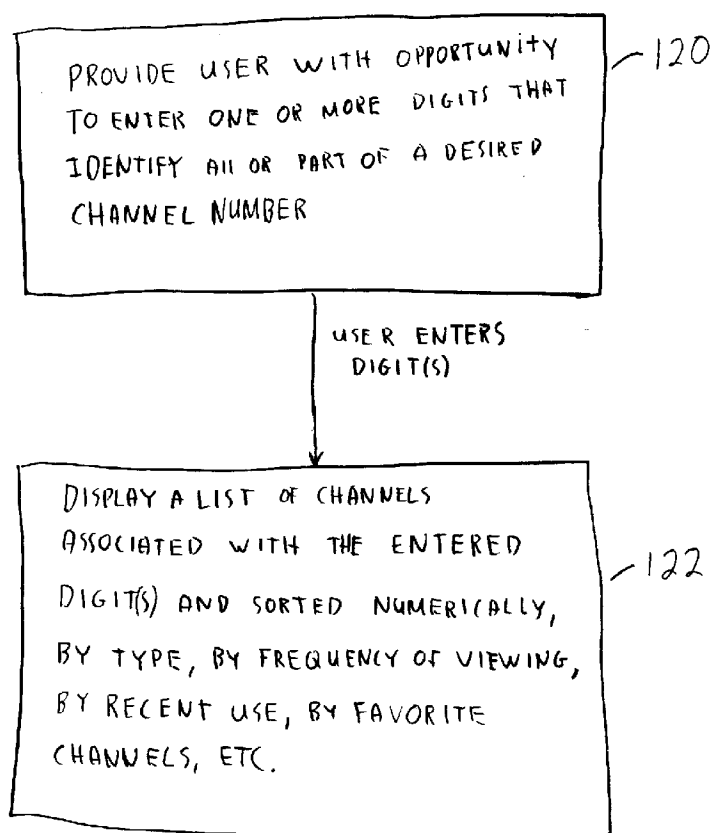


FIG. 5

**THE TECHNIQUE OF FIGURE 8 OF ELLIS IS INITIATED BY
INPUT OF A NUMERICAL-VALUE INPUT KEY**

The technique of Figure 8 is based on the user first entering a digit, which in this example is "4".

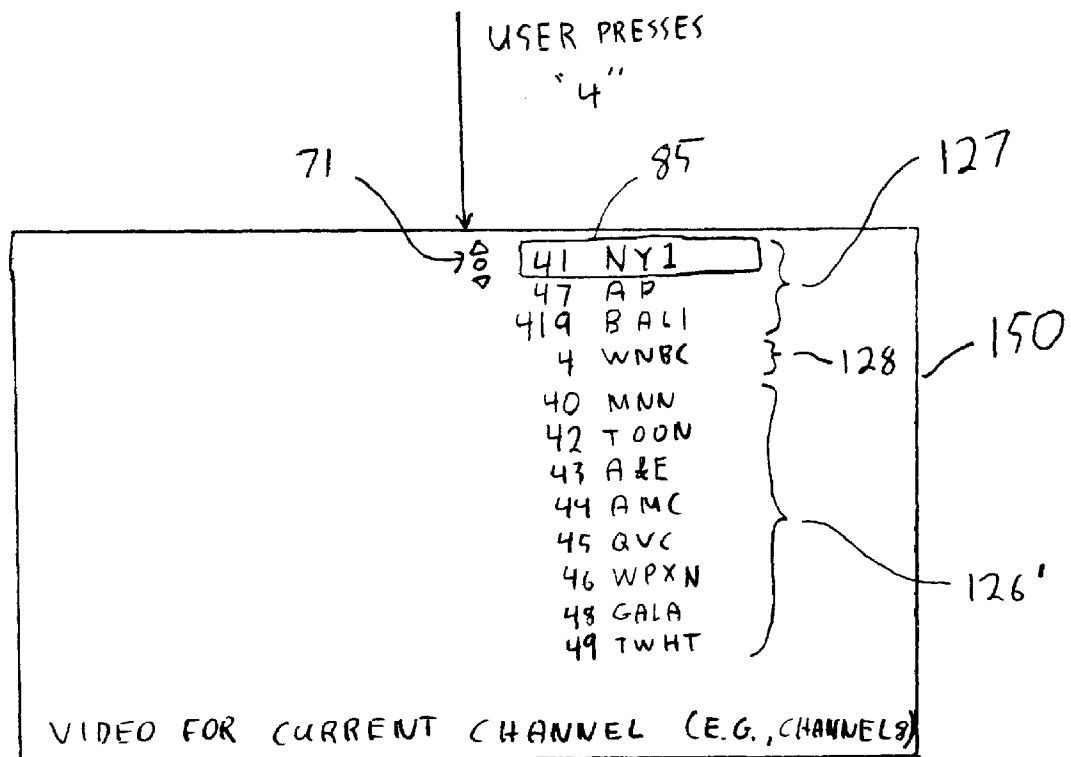


FIG. 8

**THE TECHNIQUE OF FIGURE 9 OF ELLIS IS INITIATED BY
INPUT OF A NUMERICAL-VALUE INPUT KEY**

The technique of Figure 9 involves providing the user with an opportunity to enter one or more digits (step 160), the user entering the digits, and then displaying information based on the entered digits (step 162).

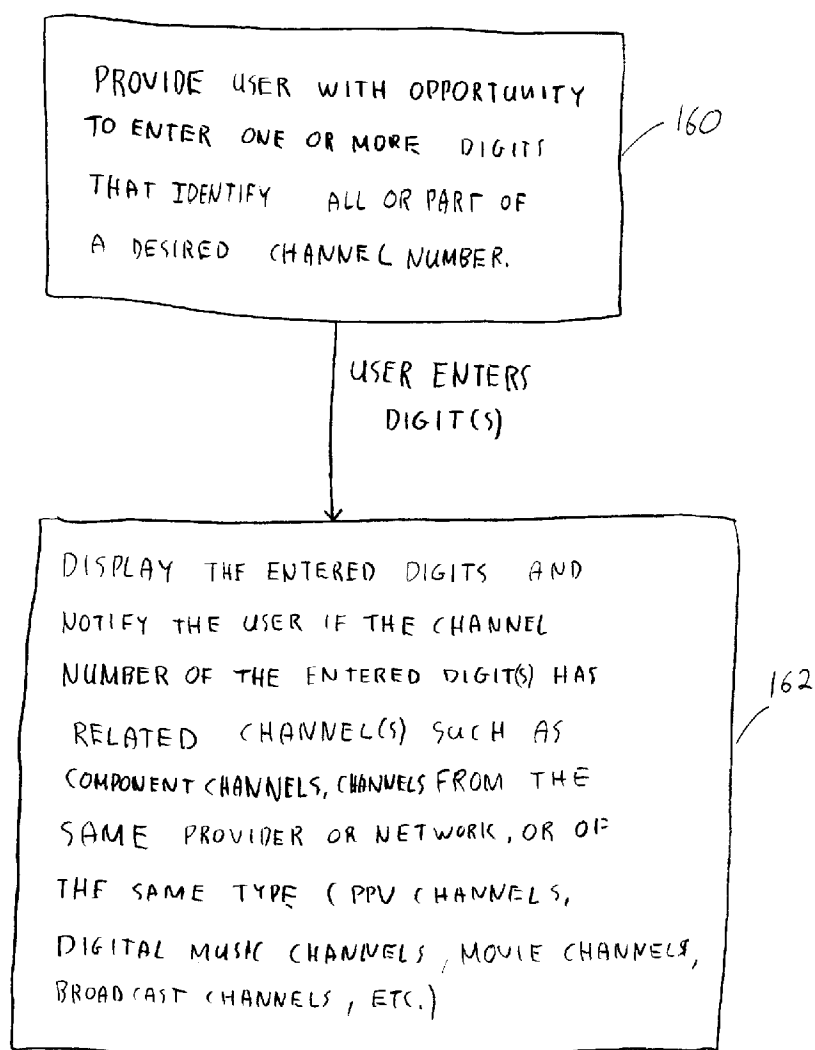


FIG. 9

**THE TECHNIQUE OF FIGURE 10 OF ELLIS IS INITIATED BY
INPUT OF A NUMERICAL-VALUE INPUT KEY**

The technique of Figure 10 is based on the user first entering one or more digits, which in this example is "1" and "4".

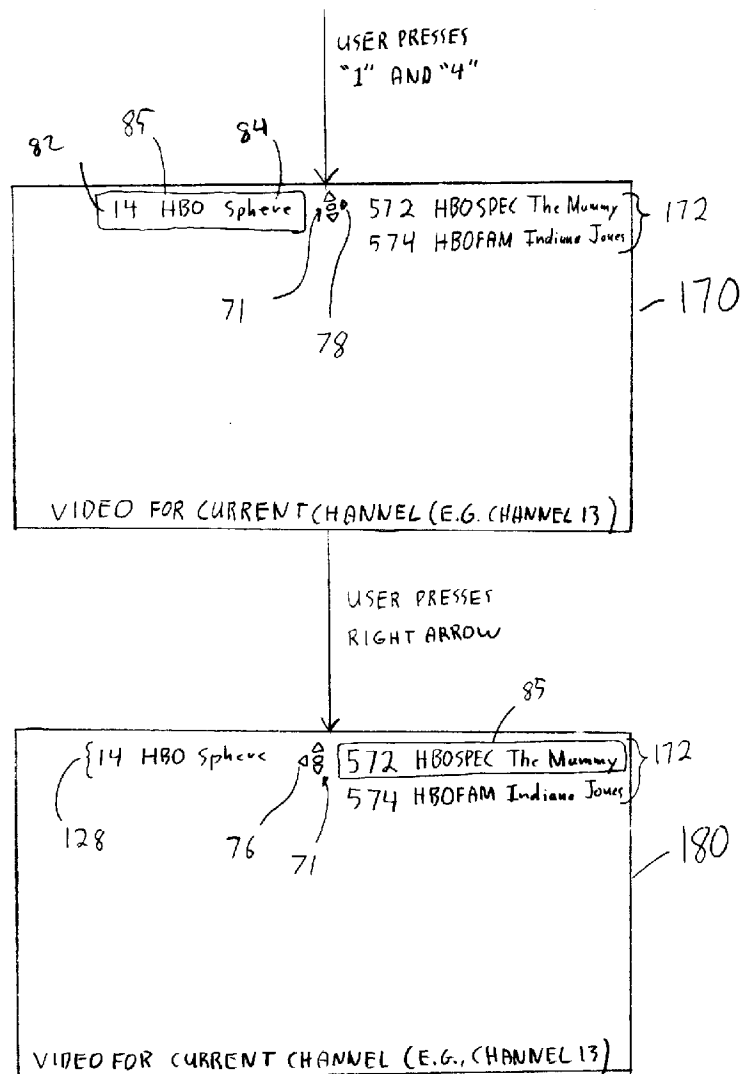


FIG. 10

**THE TECHNIQUE OF FIGURE 11 OF ELLIS IS INITIATED BY
INPUT OF A NUMERICAL-VALUE INPUT KEY**

The technique of Figure 11 is based on the user first entering a digit, which in this example is "9".

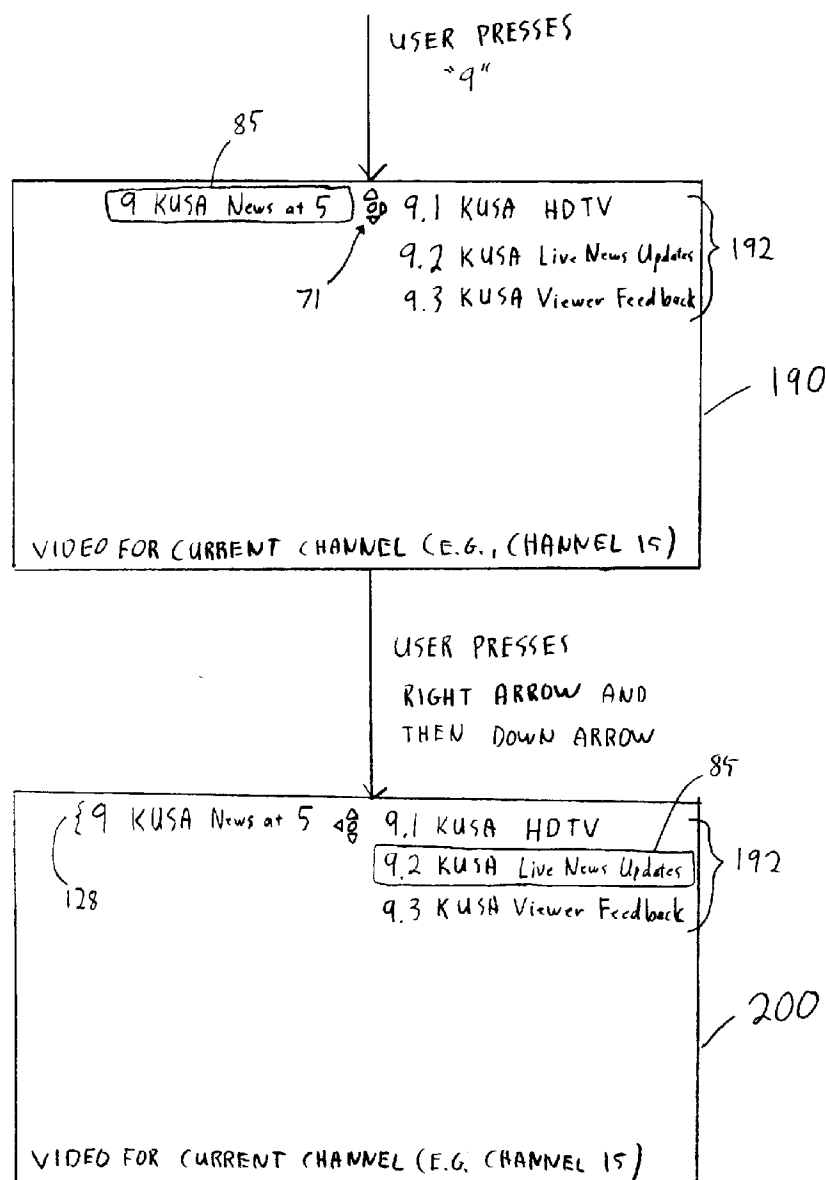


FIG. 11

**THE TECHNIQUE OF FIGURE 14 OF ELLIS IS INITIATED BY
INPUT OF A NUMERICAL-VALUE INPUT KEY**

The technique of Figure 14 is based on the user first entering one or more digits, which in this example is "4" and "6".

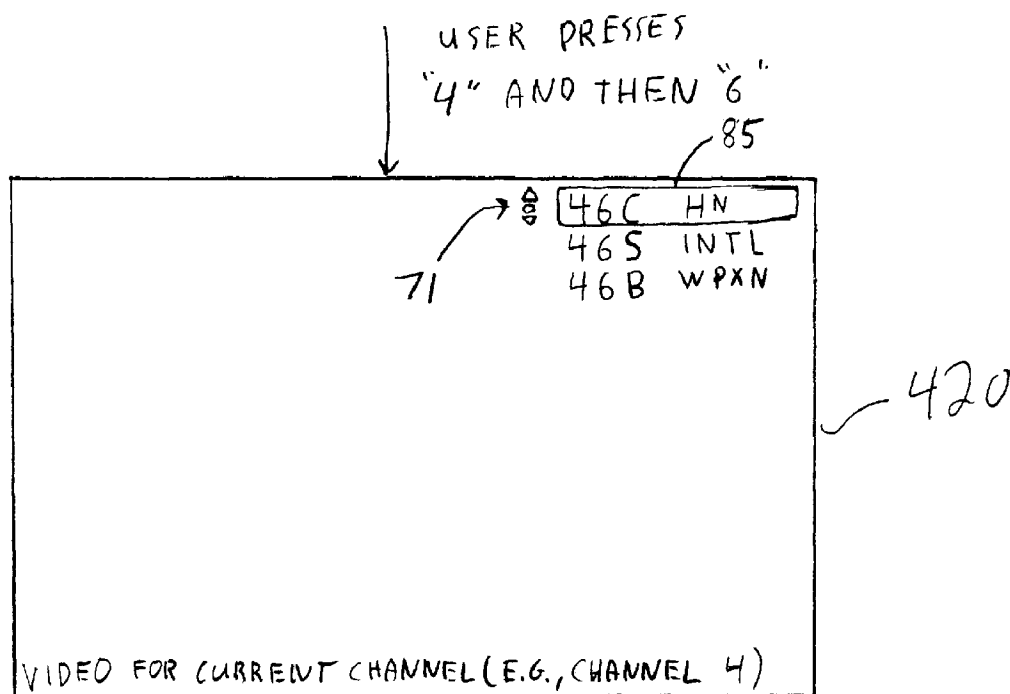
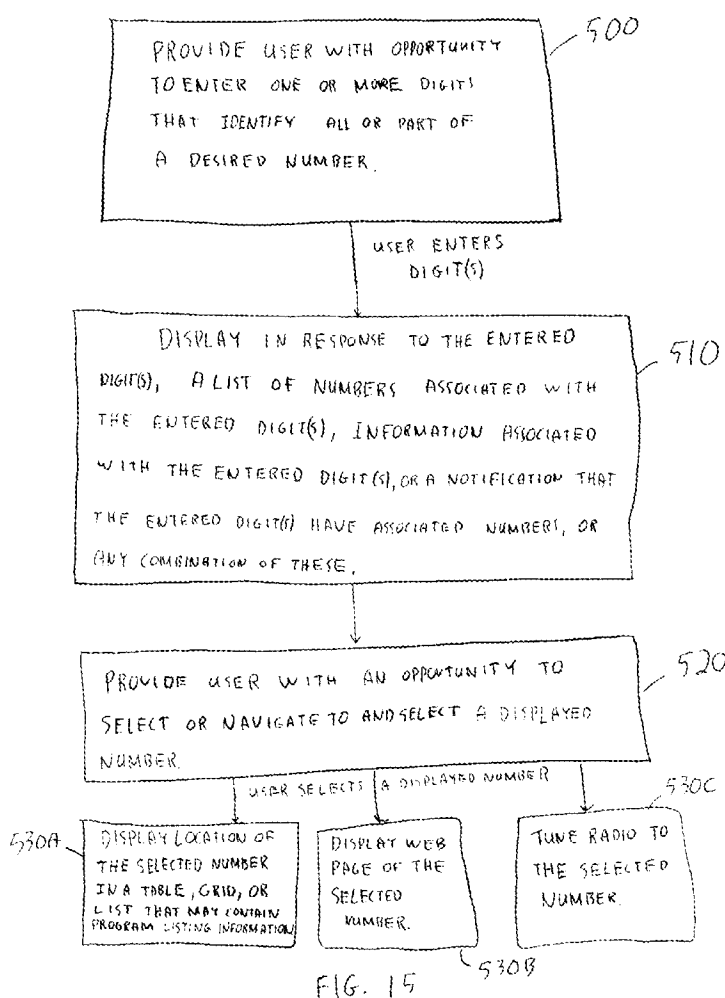


FIG. 14

**THE TECHNIQUE OF FIGURE 15 OF ELLIS IS INITIATED BY
INPUT OF A NUMERICAL-VALUE INPUT KEY**

The technique of Figure 15 involves providing the user with an opportunity to enter one or more digits (step 500), the user entering the digits, and then displaying information based on the entered digits (step 510).



Thus, it is clear that all of the techniques disclosed by Ellis require a user to enter digits that precede other keys. In contrast, the first selecting procedure

of Appellants' claim 1 is performed "when receiving an instruction by the predetermined operation key *that is not preceded by the numerical-value input keys*".¹⁷

THE COMBINATION OF DIFFERENT TECHNIQUES DISCLOSED BY ELLIS PROPOSED IN THE ADVISORY ACTION WOULD BE INITIATED BY INPUT OF A NUMERICAL-VALUE INPUT KEY

Despite Ellis' clear disclosure that the techniques all require an initial numerical-value key input, the Advisory Action states that when the techniques of Figures 6C and 11 are combined, it is possible to perform a channel selection that is not first preceded by a numerical-value input key. Because the techniques of these Figures both require an initial input of a numerical-value input key, even if these Figures were combined, the combination would require an initial input of a numerical-value input key.

THE TECHNIQUE OF FIGURE 6C IS INITIATED BY INPUT OF A NUMERICAL VALUE KEY

Figure 6C, reproduced below, is one way "in which the system may handle the channel number entry process of FIG. 5."¹⁸ As clearly illustrated in Figure 5, reproduced above, this technique involves providing the user with an opportunity to enter one or more digits (step 120), the user entering the digits, and then displaying information based on the entered digits (step 122).

¹⁷ Emphasis added.

¹⁸ Column 6, lines 15-17.

The channel entry processor of Figure 6C is employed when a user desired to tune to channel 252¹⁹. Ellis discloses that screen 125 is displayed when a user presses the “2” key²⁰. If the user then presses the “5” key screen 130 is displayed²¹.

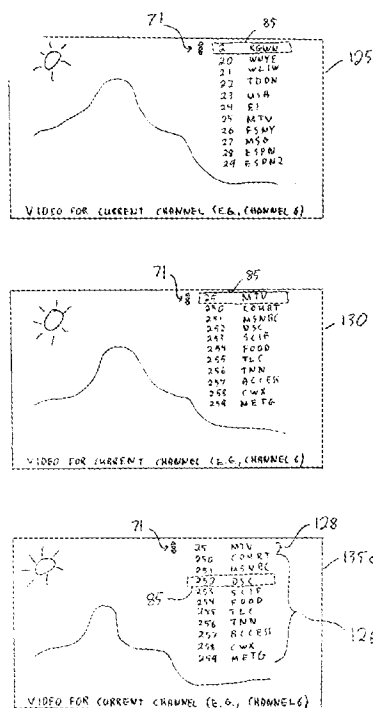


FIG. 6C.

The user can then move the highlighted region 85 to channel 252 by pressing the down arrow key three times, which provides the screen layout 135c²². Accordingly, Ellis clearly discloses that the highlighting of channel 252 is achieved by first providing a numerical-value input, i.e., “2” and “5”.

¹⁹ Column 6, lines 15-18.

²⁰ Column 6, lines 18-20.

²¹ Column 6, lines 30-32.

²² Column 7, lines 5-9.

**THE TECHNIQUE OF FIGURE 11 IS INITIATED BY INPUT OF A
NUMERICAL VALUE KEY**

Regarding Figure 11, as clearly illustrated in the Figure reproduced below, this technique requires a user to Figure press a numerical-value input key, i.e., “9”, in order to display screen 190²³. If the user desires to view channel 9.2, the user presses the right arrow 78, followed by the down arrow 74²⁴.

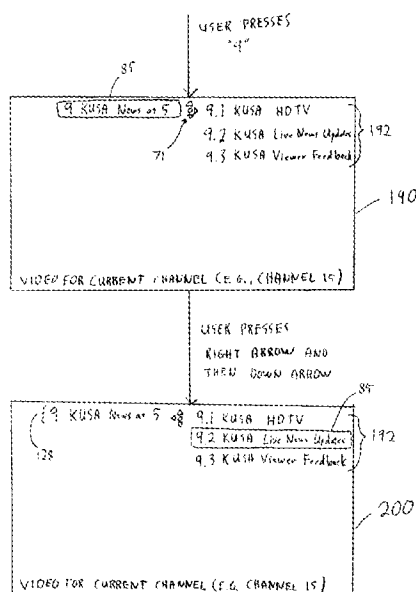


FIG. 11

Thus, the express disclosure of Ellis clearly requires that the techniques of Figures 6C and 11 involve preceding a non-numerical-value input by a numerical value input (“2” and “5” in Figure 6C; “9” in Figure 11).

²³ Column 9, lines 32-34.

²⁴ Column 9, lines 41-44.

**THE COMBINATION OF THE TECHNIQUES OF FIGURES 6C
AND 11 IGNORES THE EXPRESS DISCLOSURE OF ELLIS**

The Advisory Action relies upon the disclosure of Figure 6C that a channel can be selected by using up and down buttons, and the disclosure in Figure 11 that the “right” button can be used to select a sub-channel. Recognizing that Figure 11 clearly indicates that the “9” key must be depressed in order to invoke this technique, the Advisory Action states that “using figure 6C to show that a main channel can be chosen using the ‘up’ and ‘down’ keys, it is therefore possible to get to the method shown in figure 11 without pressing the ‘9’ key.”²⁵ This, however, ignores the express disclosure of Ellis that the technique of Figure 6C is initiated in response to the user entering numerical-value keys, which in the case of Figure 6C are “2” and “5”.

As such, even if the techniques of Figures 6C and 9 were combined in the manner described in the Advisory Action, the combination would still result in a channel selection technique in which the predetermined operation key is preceded by a numerical-value input key, namely the “2” and “5” keys. In contrast, Appellants’ claim 1 recites that the first selecting procedure is performed “when receiving an instruction by the predetermined operation key *that is not preceded by the numerical-value input keys.*”²⁶

²⁵ Advisory Action, at page 2.

²⁶ Emphasis added.

**ONE OF ORDINARY SKILL IN THE ART WOULD NOT HAVE
COMBINED THE TECHNIQUES OF FIGURES 6C AND 11 IN THE
MANNER DESCRIBED IN THE OFFICE ACTION BECAUSE THIS
COMBINATION RESULTS IN A VERY COMPLEX SUB-CHANNEL
SELECTION TECHNIQUE**

In an attempt to arrive at the claimed sub-channel selection technique, the Advisory Action proposes a complex channel selection procedure that would not have been obvious to one of ordinary skill in the art. In contrast to the complex procedure proposed by the Advisory Action, the device of Appellants' claim 1 provides a relatively simple technique for selecting a sub-channel, namely pressing a predetermined operation key to fix the main channel to the channel currently being displayed, and then entering the sub-channel number. The complex procedure proposed by the Advisory Action would require:

1. entering the "2" and "5" key;
2. using a down arrow key to scroll through all of the channels to reach channel "9";
3. using the right arrow key to select a sub-channel of channel "9" and
4. selecting the sub-channel.

Clearly, the technique provided by Appellants' claim 1 is much simpler, and therefore would be much more desirable by the end-user. Instead of having to enter numbers, scroll through channels and then use arrow keys, Appellants' claimed sub-channel selection technique only requires entering a predetermined

key followed by numerical-value input keys corresponding to the desired sub-channel.

In response to Appellants' previous arguments that Figure 11 of Ellis illustrates the selection of a sub-channel of channel "9" while channel "15" is currently being displayed, the Advisory Action states that "[t]here is nothing in Ellis that indicates that the user could not navigate to the current channel being view (15 in this case) from the inputted channel number 9 using the arrow keys, and then select the minor channels of 15 by using the arrow keys." Here again the Advisory Action is proposing a very complex channel selection technique which involves:

1. selecting channel "15" by some undetermined technique such that the channel is currently being displayed;
2. entering the channel "9"
3. using a down arrow key to scroll through from channel "9" to "channel 15";
4. using the right arrow key to select a sub-channel of channel "15" and
5. selecting the sub-channel.

This proposed complex procedure clearly demonstrates that the manner in which Ellis is being interpreted with respect to Appellants' claims is not based

upon how one of ordinary skill in the art would have interpreted it, but instead is being interpreted using improper hindsight reconstruction for the sole purpose of rejecting Appellants' claims. Specifically, one of ordinary skill in the art, in view of the disclosure of Ellis and the desire of a user to select a sub-channel of channel 15 while viewing channel 15, would either:

1. use the up or down channel selection keys to select the sub-channel (which would require a few button presses compared to the many button presses proposed by the technique described in the Advisory Action; or
2. perform the technique consistent with the description of Ellis, namely inputting the numerical-value keys "1" and "5" and then using the arrow keys to select a sub-channel.

It is therefore clear that instead of interpreting the disclosure of Ellis in a manner that would have been done by one of ordinary skill in the art to achieve a simple channel selection technique (which would not be the same as the claimed first selecting procedure), the Advisory Action proposes a complex channel selection technique that requires receipt of a numerical-value input key (and thus would also not be the same as the claimed first selecting procedure).

Because Shintani and Ellis each disclose only channel selection techniques in which numerical-value input keys are required before any predetermined operation key is selected, and the channel selection procedure proposed by the Advisory Action not only is unsupported by the disclosure of Ellis but would also

be so complex that one of ordinary skill in the art would not have found it desirable to implement such a technique, the combination of Shintani and Ellis does not render Appellants' claim 1 obvious.

Claims 4 and 5 are patentably distinguishable over the combination of Shintani and Ellis by virtue of their dependency from claim 1. Claim 8 recites a method with similar elements to those discussed above with regard to Appellants' claim 1, and is patentably distinguishable over the combination of Shintani and Ellis for similar reasons. Claims 9 and 10 are patentably distinguishable by virtue of their dependency from claim 8.

VIII. CONCLUSION

For at least those reasons set forth above, it is respectfully submitted that the rejection of claims 1, 4, 5 and 8-10 as being obvious in view of the combination of Shintani and Ellis should be reversed.

The Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, to Deposit Account No. 05/1323, Docket No.: 010482.50896US.

Respectfully submitted,

February 26, 2008



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CLAIMS APPENDIX

1. A channel selection device in the digital/analog broadcasting receiver comprising:

a receiver for receiving coded digital/analog broadcasting signals transmitted from a broadcasting station;

a digital/analog decoder for decoding the digital/analog broadcasting signals received by the receiver and outputting them to an image-displaying display device connected to the broadcasting receiver;

a memory for storing a channel information included in the broadcasting signals decoded by the digital decoder;

a control unit for controlling the device; and

an input device used for a user to input an operation instruction including the channel selection to the control unit,

wherein the digital broadcasting signals have one or a plurality of sub-channels to transmit contents in one main channel,

wherein the input device has a predetermined operation key to which an operation instruction is assigned to fix the channel, in addition to numerical-value input keys for inputting the channel number,

wherein the control unit fixes the main/sub-channel selected by the following first or second selecting procedure in response to the operation instruction from the input device during the reception of the broadcast by the broadcasting receiver,

wherein the first selecting procedure, when receiving an instruction by the predetermined operation key that is not preceded by the numerical-

value input keys, fixes the main channel being currently received, and waits for the sub-channel number input, and then fixes the sub-channel of the number of the numerical value inputted by the numerical-value input keys, and

wherein the second selecting procedure, when receiving the input of a numerical value by the numerical-value input keys, and then receiving the input by the predetermined operation key, fixes the main channel of the number of the inputted numerical-value, and waits for the sub-channel number input, and then fixes the sub-channel of the number of the numerical value inputted by the numerical-value input keys.

Claims 2 and 3 (Canceled)

4. The channel selection device in the digital/analog broadcasting receiver according to claim 1, wherein the predetermined operation key is a “-” key.

5. The channel selection device in the digital/analog broadcasting receiver according to claim 1, wherein the channel selection device further comprises an On-Screen Display (OSD) output circuit for OSD displaying the main channel number and the sub-channel number inputted by the numerical-value input keys and fixed by the control unit on the display device.

Claims 6 and 7 (Canceled)

8. A method of selecting a channel, the method comprising the acts of:
- receiving an input from an input device; and
 - determining whether the input is a predetermined operation key and is not preceded by an input that is a numerical-value input key,
- wherein when the input is the predetermined operation key and is not preceded by the input that is the numerical-value input key, a first selecting procedure is performed that includes the acts of
- fixing a main channel to a main channel that is currently being received;
 - waiting for an input of a numerical-value input key;
 - receiving an input of a numerical-value input key; and
 - fixing a sub-channel as the input of the numerical-value input key;
- wherein when the input is the numerical-value input key followed by the predetermined operation key, a second selecting procedure is performed that includes the acts of
- fixing a main channel to a main channel corresponding the numerical-value input key that preceded the predetermined operation key;
 - waiting for an input of a numerical-value input key;
 - receiving an input of a numerical-value input key; and
 - fixing a sub-channel as the input of the numerical-value input key.

9. The method of claim 8, wherein the predetermined operation key is a “-” key.

10. The method of claim 8, further comprising the act of:
outputting an On-Screen Display (OSD) that displays the main channel number and the sub-channel number inputted by the numerical-value input keys and fixed by the control unit on the display device.

EVIDENCE APPENDIX

None

RELATED PROCEEDINGS APPENDIX

None